OIPE

RAW SEQUENCE LISTING DATE: 07/18/2001
PATENT APPLICATION: US/09/545,199B C TIME: 09:31:07

Input Set : A:\6227.txt
Output Set: N:\CRF3\07182001\I545199B.raw

Does Not Comply
Corrected Diskette Needed
See P. 5

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 3 <110> APPLICANT: Lowery E., David
 4       Fuller E., Troy
 5       Kennedy J., Michael
 7 <120> TITLE OF INVENTION: Anti-Bacterial Vaccine Compositions
 9 <130> FILE REFERENCE: 28341/6227.1
11 <140> CURRENT APPLICATION NUMBER: 09/545,199B
12 <141> CURRENT FILING DATE: 2000-04-06
14 <150> PRIOR APPLICATION NUMBER: 60/153,453
15 <151> PRIOR FILING DATE: 1999-09-10
17 <150> PRIOR APPLICATION NUMBER: 60/128,689
18 <151> PRIOR FILING DATE: 1999-04-09
20 <160> NUMBER OF SEQ ID NOS: 169
22 <170> SOFTWARE: PatentIn Ver. 2.0
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**ERRORED SEQUENCES**

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1994 <212> TYPE: PRT
1995 <213> ORGANISM: Pasteurella multocida
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2002              20                  25                  30
2004 Glu Arg Ser Val Tyr Asn Ile Gly Asp Ile Tyr Ala Ser Lys Lys Leu
2005          35                  40                  45
2007 Thr Val His Thr His Asn Leu Ile Asn Asp Val Arg Leu Ser Gly Asn
2008      50                  55                  60
2010 Val Ser Tyr Lys Pro Ile Gly Ser Ser Arg Asp Tyr Asp Ile Ser Arg
2011  65                  70                  75                  80
2013 Val Ala Val His Gly Trp His Asn Asn Val Tyr Lys Leu Asn Leu Asn
2014                  85                  90                  95
2016 Leu Gln Glu Gln Asp Lys Thr Asp Ile Lys Val Val Lys Met Gly Ala
2017              100                 105                 110
2019 Ile Arg Ser Asp Gly Asp Phe Asp Phe Lys Gly Ile Lys Ala Thr Ser
2020          115                 120                 125
2022 Ser Glu Ser Lys Pro Gln Leu Ile Asn His Gly Leu Ile Asn Val Lys
2023      130                 135                 140
2026 Gly Thr Phe Asn Ala Glu Ala Asp Gln Val Val Asn Gln Met Lys Ala
2027 145                 150                 155                 160
2029 Phe Asn Gln Asn Ala Leu Ala Ser Val Phe Lys Asn Pro Ala Lys Ile
2030                  165                 170                 175
2032 Thr Met Tyr Tyr Gln Pro Leu Thr Arg Tyr Ile Trp Thr Pro Leu Ser
2033              180                 185                 190
2035 Gly Asn Ala Ser Arg Glu Phe Asn Asn Leu Glu Ser Phe Leu Asp Ala
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RAW SEQUENCE LISTING DATE: 07/18/2001
PATENT APPLICATION: US/09/545,199B TIME: 09:31:08

Input Set : A:\6227.txt
Output Set: N:\CRF3\07182001\I545199B.raw

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2036          195                 200                 205
2038 Leu Phe Gly Ser Thr Thr Ile Leu Lys Ser Ser Phe Tyr Ser Thr Glu
2039      210                 215                 220
2041 Asn Phe Ser Ala Tyr Gln Leu Leu Ser His Ile Gln His Ser Pro Met
2042 225                 230                 235                 240
2044 Tyr Gln Lys Ala Met Ala Gln Val Phe Gly Ala Glu Trp His Ser Lys
2045                 245                 250                 255
2047 Ser Tyr Asp Glu Met Arg Asn Lys Trp Lys Ser Phe Lys Glu Asn Pro
2048             260                 265                 270
2050 Thr Asp Phe Ile Tyr Tyr Pro Ser Glu Lys Ala Lys Ile Leu Ala Gly
2051          275                 280                 285
2053 Lys Leu Glu Gly Lys Leu Thr Thr Leu Gln Asn Gly Glu Tyr Ala Glu
2054      290                 295                 300
2056 Arg Gly Lys Phe Asp Glu Ser Ile Gln Ile Gly Lys His Gln Leu Ser
2057 305                 310                 315                 320
2059 Leu Pro Ser Val Glu Leu Lys Ala Glu Phe Ser Asp Lys Glu Arg Leu
2060                 325                 330                 335
2062 Glu Glu Asp Gly Val Asp Leu Ser Ser Ile Ala Glu Leu Leu Glu Met
2063             340                 345                 350
2065 Pro Asn Leu Phe Ile Asp Asn Ser Ile Gln Leu Glu Lys Lys Lys Leu
2066          355                 360                 365
2068 Ser Pro Ile Glu Asp Leu Asp Glu Glu Pro Arg Lys Asn Leu Asp Ile
2069      370                 375                 380
2071 Glu Glu Ser His Ser Asn Ser Ser Asp Asp Val Leu Ser Met Asn Asp
2072 385                 390                 395                 400
2074 Asp Glu Ser Asp Thr Asp Asp Ser Lys Trp Ser Met Gly Asn Asp Glu
2075                 405                 410                 415
2077 Lys Glu Met Pro Asp Asp Lys Leu Gly Ile Ser Arg Asp Asp Arg Gly
2078             420                 425                 430
2080 Asn Lys Pro Pro Arg Thr Asp Pro Thr Val Asp Tyr Leu Asn Pro Asp
2081          435                 440                 445
2083 Glu Phe Phe Glu Asn Gly Tyr Leu Leu Asn Glu Leu Leu Gln Glu Leu
2084      450                 455                 460
2087 Gly Glu Glu Pro Leu Leu Lys Glu Gly Glu Asp His Phe Lys Arg Ser
2088 465                 470                 475                 480
2090 Thr Asn Leu Val Arg Leu Gly Glu Arg Asp Arg Gln Asn Arg Glu Lys
2091                 485                 490                 495
2093 Arg Glu Lys Glu Gly Tyr Phe Asp Leu Pro Gly Thr Leu Asp Met Lys
2094             500                 505                 510
2096 Leu Gln Glu Leu Phe Glu Lys Arg Lys Gln Lys His Glu Ala Glu Gln
2097          515                 520                 525
2099 Lys Ala Arg Ile Glu Lys Ala Leu Leu Gln Lys Ser Glu Gln Gln Glu
2100      530                 535                 540
2102 Lys Arg Val Glu Glu Arg Lys Gln Glu Glu Lys Arg Gln Ala Gln Asp
2103 545                 550                 555                 560
2105 Lys Ile Ala Lys Gln Val Glu Ile Ala Lys Glu Met Gln Arg Val Glu
2106                 565                 570                 575
2108 Glu Ile Arg Gln Arg Glu Lys Gln Leu Ala Ile Gln Leu Gln Glu Glu
2109             580                 585                 590
```

**RAW SEQUENCE LISTING** DATE: 07/18/2001
PATENT APPLICATION: **US/09/545,199B** TIME: 09:31:08

Input Set : **A:\6227.txt**
Output Set: **N:\CRF3\07182001\I545199B.raw**

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2112         595                 600                 605
2114 Ala Glu Gln Lys Gln Lys Ala Glu Glu Lys Val Ala Gln Glu Arg Leu
2115     610                 615                 620
2117 Asp Ile Glu Gln Gln Lys Ala Tyr Glu Glu Met Ala Lys Arg Glu Ala
2118 625                 630                 635                 640
2120 Glu Ala Ser Lys Asn Val Leu Leu Lys Ala Ile Asp Glu Glu Arg Pro
2121                 645                 650                 655
2123 Lys Val Glu Thr Asp Pro Leu Phe Arg Thr Lys Leu Lys Tyr Ile Asn
2124             660                 665                 670
2126 Gln Asp Asp Tyr Ala Gly Ala Asn Tyr Phe Phe Asn Lys Val Gly Leu
2127         675                 680                 685
2129 Asn Thr Lys Gly His Gln Lys Val Asn Val Leu Gly Asp Asn Tyr Phe
2130     690                 695                 700
2132 Asp His Gln Val Ile Thr Arg Ser Ile Glu Lys Lys Val Asp Asn His
2133 705                 710                 715                 720
2135 Leu Asn Gln Lys Tyr Asn Leu Ser Asp Val Glu Leu Val Lys Gln Leu
2136                 725                 730                 735
2138 Met Asp Asn Ser Thr Thr Gln Ala Gln Glu Leu Asp Leu Lys Leu Gly
2139             740                 745                 750
2141 Ala Ala Leu Thr Lys Glu Gln Gln Ala Asn Leu Thr Gln Asp Ile Val
2142         755                 760                 765
2144 Trp Tyr Val Lys Thr Lys Val Lys Gly Lys Asp Val Phe Val Pro Lys
2145     770                 775                 780
2148 Val Tyr Phe Ala Ser Glu Thr Leu Val Glu Ala Gln Lys Leu Gln Gly
2149 785                 790                 795                 800
2151 Leu Gly Thr Gly Thr Ile Arg Val Gly Glu Ala Lys Ile Lys Ala Lys
2152                 805                 810                 815
2154 Asp Val Val Asn Thr Gly Thr Leu Ala Gly Arg Lys Leu Asn Val Glu
2155             820                 825                 830
2157 Ala Ser Asn Lys Ile Lys Asn Gln Gly Ser Ile Leu Ser Thr Gln Glu
2158         835                 840                 845
2160 Thr Arg Leu Val Gly Arg Lys Gly Ile Glu Asn Val Ser Arg Ser Phe
2161     850                 855                 860
2163 Ala Asn Asp Glu Leu Gly Val Thr Ala Gln Arg Ser Glu Ile Lys Thr
2164 865                 870                 875                 880
2166 Glu Gly His Leu His Leu Glu Thr Asp Lys Asp Ser Thr Ile Asp Val
2167                 885                 890                 895
2169 Gln Ala Ser Asp Ile Lys Ala Lys Thr Ser Phe Val Lys Thr Gly Asp
2170             900                 905                 910
2172 Val Asn Leu Lys Asn Thr Tyr Asn Thr Lys His Ala Tyr Arg Glu Lys
2173         915                 920                 925
2175 Phe Ser Pro Ser Ala Leu Gln Val Ala Glu Leu Asp Val Ala Gly Leu
2176     930                 935                 940
2178 Lys Val Pro Leu Leu Gly Val Ser Ser Pro Ser Ser Tyr Ser Glu His
2179 945                 950                 955                 960
2181 Thr Ser Glu Ala Thr Ser Glu Gly Ser Ile Phe Glu Val Gly His Leu
2182                 965                 970                 975
2184 His Leu Ala Val Asp Arg Asp Val Asn Gln Ala Gly Ser Lys Ile Lys
```

RAW SEQUENCE LISTING DATE: 07/18/2001
PATENT APPLICATION: US/09/545,199B TIME: 09:31:08

Input Set : A:\6227.txt
Output Set: N:\CRF3\07182001\I545199B.raw

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2185              980                 985                 990
2187 Ala Lys Tyr Thr Thr Gly Val Val Lys Gly Asn Phe Asn Thr Glu Ala
2188         995                 1000                1005
2190 Gly Lys Asn Ile Lys His Val Glu Lys Glu Glu Tyr Ser Ser Gln Leu
2191     1010                1015                1020
2193 Phe Ala Ser Ala His Ala Ser Gly Gly Gly Thr Ser Val Arg Tyr Asp
2194 1025                1030                1035                1040
2196 Tyr Asn Ser Gln Asp Gly Gly Asn Ala Ser Val Gly Val Pro Thr Asn
2197                1045                1050                1055
2199 His Thr Gly Val Gly Ala Glu Ala Gly Met Ser Phe Thr His Thr Lys
2200             1060                1065                1070
2202 Asp Lys Glu Thr Leu Leu Thr His Thr Asn Ser Glu Leu Gln Val Lys
2203         1075                1080                1085
2205 His Gly Lys Leu His Val Leu Gly Tyr Ala Asp Ile Gly Gly Val Asp
2206     1090                1095                1100
2209 Ile Asn Thr Lys Leu Pro Glu Asp Ala Gln Ser Lys Ala Gln Lys Glu
2210 1105                1110                1115                1120
2212 Ile Ala Ala Ser Lys Pro Glu Lys Thr Glu Gln Ser Ala Gln Asp Val
2213                1125                1130                1135
2215 Ala Gln Ala Gln Ser Asn Ala Asn Lys Asp Lys Glu Asn Lys Ala Pro
2216             1140                1145                1150
2218 Glu Ile Lys Glu Leu Ser Glu Ala Glu Ile Ala Asp Leu Met Ser Glu
2219         1155                1160                1165
2221 Lys Ser Lys Ala Tyr Phe Asp Asp Phe Ala Glu Gln Ala Lys Lys Ala
2222     1170                1175                1180
2224 Pro Glu Asn Asn Arg Phe Glu Leu Ser Ala Lys Glu Ile Lys Ser Ser
2225 1185                1190                1195                1200
2227 Lys Gln Lys Asp Gln Tyr Asp His Glu Ser Glu Arg Thr Thr Phe Lys
2228                1205                1210                1215
2231 Val Gly Pro Glu Ala Glu Ala His Ser Ala Val Ala Asp Met Val Ser
2232             1220                1225                1230
2234 His Leu Val Lys Glu Tyr Arg Asp Ala Gln Asn Gly Thr Lys Gln Asp
2235        1235                1240                1245
2237 Gly Thr Val Ala Leu Gln His Ala Ser Asp Val Leu Asn Ile Val Thr
2238     1250                1255                1260
2240 Gly Asp Leu Ala Gly Ser Ser Ala Lys Leu Ser Val Glu Arg Thr His
2241 1265                1270                1275                1280
2243 Glu Thr Lys Arg Thr Thr Glu Thr Gly Asp Ile Val Thr Lys Ile Gly
2244                1285                1290                1295
2246 Gly Asn Val Thr Leu Ser Ala Arg Ser Gly Ser Val Asn Leu Lys Asn
2247             1300                1305                1310
2249 Val Gln Ser Asp Glu Gln Ala Asn Leu Thr Leu Arg Ala Lys Glu Asp
2250         1315                1320                1325
2252 Val Asn Val Leu Ser Gly Glu Lys Thr Arg Glu Thr Thr Glu Thr Val
2253     1330                1335                1340
2255 Ser Arg Gln Lys Leu Ser His Gly Val Asn Ala Gly Cys Ser Met Met
2256 1345                1350                1355                1360
2258 Ser Gly Ala Cys Thr Ala Gly Val Ser Thr Ser Leu Glu Gly Asn Glu
2259                1365                1370                1375
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**RAW SEQUENCE LISTING** DATE: 07/18/2001
PATENT APPLICATION: **US/09/545,199B** TIME: 09:31:08

Input Set : **A:\6227.txt**
Output Set: **N:\CRF3\07182001\I545199B.raw**

```
2261 Ser Tyr Thr Ser Glu Arg Glu Thr Ala Gln Asn Asn Ser Phe Leu Lys
2262             1380                1385                1390
2264 Ala Arg Asn Met Lys Val Glu Ala Gly Arg Asp Phe Asn Val Val Ser
2265         1395                1400                1405
2267 Ser Asn Ile Asp Ala Asp Lys Leu Asp Leu His Val Lys Gly Lys Thr
E--> 2268 <-(1410)              1415                1420
2270 Asn Val Val Ser Lys Gln Asp Thr Leu Gln Lys Val Thr His Gly Val
2271 1425                1430                1435                1440
2273 Asp Tyr Asn Leu Ser Ala Gly Val Ala Leu Ser Ser Ala Thr Ile Ala
2274                 1445                1450                1455
2276 Thr Pro Thr Gly Asn Val Gly Phe Gly Tyr Thr Asn Glu Thr Glu Ser
2277             1460                1465                1470
2279 Lys Arg Thr Val Asn Gln Gln Ala Gly Ile Lys Ala Asn Lys Ile Thr
2280         1475                1480                1485
2282 Gly Gln Thr His Asp Leu Asn Leu Glu Gly Gly Tyr Leu Val Ser Asn
2283     1490                1495                1500
2285 Asp Lys Asp Asn Gln Leu Lys Val Thr Gly Asp Val Thr Thr Lys Ala
2286 1505                1510                1515                1520
2288 Leu His Asp Gln His Asp Lys Asp Gly Gly Thr Phe Gly Leu Ser Val
2289                 1525                1530                1535
2291 Gly Ile Ser Glu Arg Gly Thr Thr Ala Phe Asn Val Arg Gly Gly Arg
2292             1540                1545                1550
2294 Ala Glu Gln Lys His Tyr Asn Ala Thr Gln Lys Ser Thr Leu Ser Gly
2295         1555                1560                1565
2297 Val Asp Thr Ser Gln Ala Asn Val Ser Gly Gln Val Asn Thr Asp Leu
2298     1570                1575                1580
2300 Thr Lys Ala Lys Ala Val Thr Arg Asp Asp Thr Tyr Ala Ser Thr Gln
2301 1585                1590                1595                1600
2303 Phe Ser Phe Glu Val Ala Asp Ile Val Glu Leu Gly Gln Arg Ala Lys
2304                 1605                1610                1615
2306 Asn Lys Leu Ser Ala Pro Asn Asn Asp Thr Asp Met Ala Ser Gly Ser
2307             1620                1625                1630
2309 Thr Leu Arg Ser Arg Ser Thr Thr Glu Glu Ala Asp Val Pro Thr Thr
2310         1635                1640                1645
2312 Arg Ser Arg Val Thr Asp Glu Ala Asp Ser Val Ser Val Lys Asn Pro
2313     1650                1655                1660
2315 Ile Tyr Glu Ser Ala Asp Ala Val Val Pro Thr Pro Arg Ser Arg Asn
2316 1665                1670                1675                1680
2318 Val Asp Ser Thr Asp Leu Val Asp Asn Pro Leu Tyr Ala Ser Ala Thr
2319                 1685                1690                1695
2321 Thr Lys Ala Asn Ile His Asp Tyr Glu Glu Ile Pro Ala Val Tyr Ser
2322             1700                1705                1710
2324 Lys Val Gly Asp Asn Asn Ala Asp Leu Val Arg His Lys Thr Ala Thr
2325         1715                1720                1725
2327 Ser Asp Glu His Leu Tyr Ala Glu Ile Asn Glu Pro Thr Tyr Ser Arg
2328     1730                1735                1740
2331 Val Gly Asp Lys Asn Ala Asp Met Arg Arg His Asn Ala Ala Gly Thr
2332 1745                1750                1755                1760
2334 Thr Asp Tyr Ala Asp Val Val Gln Ala His Thr Arg Lys Ala Asp Asp
```

misaligned amino acid number. Number cannot be under two aminos.

Move one space to the left.

RAW SEQUENCE LISTING DATE: 07/18/2001
PATENT APPLICATION: US/09/545,199B TIME: 09:31:08

Input Set : A:\6227.txt
Output Set: N:\CRF3\07182001\I545199B.raw

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2335                1765                1770                1775
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2338            1780                1785                1790
2340 Gly Ser Glu His Ile Tyr Thr Asp Ile Ser Asp Val Gly Thr Gln Thr
2341        1795                1800                1805
2343 Lys Ala Ile Asp Ser Thr Tyr Ala Thr Val Gly Met Pro Lys Ala Asn
2344    1810                1815                1820
2346 Ala Val Asn Leu Ile Gly Gln Asn Gly Leu Gly Ser Ile Tyr His Ser
2347 1825                1830                1835                1840
2349 Pro Asp Ser Ala Tyr Lys Thr Trp Gln Leu Leu Asp Gln Phe Ala Asn
2350                1845                1850                1855
2352 Lys Gly Gly Asp Ala Val Phe Leu Arg Pro Ala Thr Glu Met Lys Cys
2353            1860                1865                1870
2356 Ala Gly Ala Pro Leu Lys Tyr Thr Phe Ile Val Arg Asp Tyr Leu Leu
2357        1875                1880                1885
2359 Arg Arg His Thr Leu Asp Lys Ser Arg Leu Phe Tyr Asn Ala His Asn
2360    1890                1895                1900
2362 Lys Thr Leu Phe Ser Val Pro Ile Val Asp Ala Lys Val Lys Met Leu
2363 1905                1910                1915                1920
2365 Phe Ala Glu Lys Asn Ile Gln Val Asn Tyr Asp Arg Ser Leu Thr Ala
2366                1925                1930                1935
2368 Ile Asp Leu Ser Lys Arg Ile Ala Thr Phe Asn Ser Pro Glu Gly Val
2369            1940                1945                1950
2371 Val Glu Val Pro Tyr Asp Phe Ile Asn Val Val Pro Pro Met Arg Ala
2372        1955                1960                1965
2374 Pro Asp Ala Val Arg Gln Ser Ala Leu Ala Trp Gln Glu Gly Lys Trp
2375    1970                1975                1980
2377 Ala Asn Asp Gly Trp Val Glu Val Glu Lys His Thr Leu Arg His Arg
2378 1985                1990                1995                2000
2380 Arg Tyr Ala Asn Val Phe Ala Val Gly Asp Val Ala Gly Val Pro Lys
2381                2005                2010                2015
2383 Gly Lys Thr Ala Ala Ser Val Lys Trp Gln Val Pro Val Ala Val Ala
2384            2020                2025                2030
2386 His Leu Leu Ala Glu Leu Glu Gly Lys Pro Cys Asp Glu Ile Tyr Asn
2387        2035                2040                2045
2389 Gly Tyr Thr Ser Cys Pro Leu Ile Thr Gln Leu Gly Lys Gly Met Leu
2390    2050                2055                2060
2392 Val Glu Phe Asp Tyr Asn Asn His Leu Thr Pro Ser Phe Pro Gly Val
2393 2065                2070                2075                2080
2395 Ile Ala Pro Leu Glu Glu Leu Trp Ala Thr Trp Ala Ile Lys Thr Leu
2396                2085                2090                2095
2398 Gly Leu Lys Pro Thr Tyr Leu Gly Met Leu Arg Gly Leu Ala
2399            2100                2105                2110
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**VERIFICATION SUMMARY** DATE: 07/18/2001
PATENT APPLICATION: **US/09/545,199B** TIME: 09:31:11

Input Set : **A:\6227.txt**
Output Set: **N:\CRF3\07182001\I545199B.raw**

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L:2268 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:16
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L:11243 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:90
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L:12304 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:103